AMENDMENTS TO THE CLAIMS

1. (**Currently amended**) An apparatus for magnetic resonance imaging of an anatomic region of a human pelvis, comprising:

an endourethral magnetic resonance imaging (MRI) coil comprising an antenna;

an interface circuit interposed between the antenna and a MRI machine, said interface circuit being in electrical communication with the antenna and being in electrical communication with the MRI machine, said interface circuit comprising a tuning-matching circuit, a decoupling circuit and a balun circuit; **[[and]]**

an endourethral therapeutic system comprising an endourethral delivery device to deliver a mode of therapy transurethrally to an area of the anatomic region imaged by the endourethral imaging system, the mode of therapy comprising electromagnetic radiation including at least one of light energy, light energy produced by a laser, microwave energy, infrared radiation, and ultraviolet radiation; and

a housing enveloping the antenna and the endourethral therapeutic system, the housing comprising an elongate member insertable into a urethra of a patient and temporarily retainable in said urethra.

2. (Previously presented) The apparatus of claim 1, wherein the antenna resides on a flexible circuit board.

3. (Previously presented) The apparatus of claim 1, wherein the interface circuit further comprises a DC regulating circuit.

4. (Previously presented) The apparatus of claim 3, wherein at least one of the tuning-matching circuit, the decoupling circuit, the balun circuit and the DC regulating circuit is enclosed within an interface box connected to the antenna by a connector.

5. (Previously presented) The apparatus of claim 3, wherein at least one of the tuning-matching circuit, the decoupling circuit, the balun circuit and the DC regulating circuit is enclosed within an interface box connected to the antenna by a wireless connection.

6. (Previously presented) The apparatus of claim 1, wherein the antenna is a receive-only coil.

7. (Previously presented) The apparatus of claim 1, wherein the tuning-matching circuit comprises at least two sets of capacitors, a first set in series and a second set in parallel.

8. (Previously presented) The apparatus of claim 2, wherein at least one of the tuning-matching circuit and the decoupling circuit resides on the flexible circuit board.

9. (Previously presented) The apparatus of claim 1, wherein the decoupling circuit comprises a PIN diode.

10. (Previously presented) The apparatus of claim 1, wherein the housing is sealed at a distal end.

11. (Previously presented) The apparatus of claim 1, wherein the electrical communication between said interface circuit and said MRI machine comprises a wireless connection.

12. (**Currently amended**) An apparatus for magnetic resonance imaging (MRI) of an anatomic region of a human pelvis, comprising:

an endourethral magnetic resonance imaging coil system, comprising a first antenna and a second antenna, wherein said second antenna is oriented at a preselected position with respect to said first antenna;

an interface system interposed between a MRI machine and said first and second antennas, said interface system being in electrical communication with said MRI machine and with each of said first antenna and said second antenna, said interface system comprising a tuning-matching system, a decoupling system and a balun system; and

a housing enveloping at least one of said first antenna and said second antenna[[.]];

wherein said electrical communication between said interface system and said MRI machine comprises a wireless connection.

13. (Original) The apparatus of claim 12, wherein at least one of said first antenna and said second antenna resides on a flexible circuit board.

14. (Original) The apparatus of claim 12, wherein the preselected position arranges said first antenna at a preselected angle to said second antenna.

15. (Original) The apparatus of claim 14, wherein said preselected angle is about 90 degrees.

16. (Original) The apparatus of claim 12, wherein said preselected position produces a quadrature pattern between said first antenna and said second antenna.

17. (Previously presented) The apparatus of claim 12, wherein said interface system comprises a first interface circuit and a second interface circuit, said first interface circuit comprising a first tuning-matching circuit, a first decoupling circuit and a first balun, and said second interface circuit comprising a second tuning-matching circuit, a second decoupling circuit and a second balun, said first interface circuit being interposed between said first antenna and the MRI machine and being in electrical communication with said first antenna and said MRI machine, and said second interface circuit being interposed between said second antenna and said MRI machine and being in electrical communication with said second antenna and said MRI machine.

18. (Previously presented) The apparatus of claim 12, wherein the endourethral MRI coil system further comprises a decoupling paddle positionable between said first antenna and said second antenna.

19. (Previously presented) The apparatus of claim 18, wherein said decoupling paddle is angularly positionable at an angular position about equidistant between said first antenna and said second antenna.

20. (Previously presented) The apparatus of claim 18, wherein a position of said decoupling paddle is adjustable by a user of the endourethral MRI coil system.

21. (Previously presented) The apparatus of claim 18, wherein the decoupling paddle is formed in a shape substantially similar to at least one of said first antenna and said second antenna.

22. (Previously presented) The apparatus of claim 18, wherein the decoupling paddle is substantially similar in at least one dimension to at least one of said first antenna and said second antenna.

23. (Previously presented) The apparatus of claim 12, wherein at least one of said first antenna and said second antenna is a receive-only coil.

24. (Previously presented) The apparatus of claim 12, wherein said tuning-matching system comprises at least two sets of capacitors, a first set in series and a second set in parallel.

25. (Previously presented) The apparatus of claim 12, wherein said decoupling system comprises a PIN diode.

Claim 26 (canceled)

27. (Previously presented) The apparatus of claim 12, wherein the housing comprises an insulator layer applied to cover the at least one of said first antenna and said second antenna.

28. (Previously presented) The apparatus of claim 12, wherein the housing comprises a hollow tubular member.

29. (Previously presented) The apparatus of claim 28, wherein the hollow tubular member is sealed at a distal end.

30. (Previously presented) The apparatus of claim 28, wherein the hollow tubular member envelops said first antenna and said second antenna.

Claim 31 (canceled)

32. (**Currently amended**) The apparatus of claim [[31]]1, wherein the elongate member is temporarily retained in a preselected position by an inflation of a balloon.

33. (**Currently amended**) The apparatus of claim [[31]]1, wherein the antenna resides on a flexible circuit board.

Claim 34 (canceled)

35. (**Currently amended**) The apparatus of claim [[34]]1, wherein the electromagnetic radiation comprises light energy.

36. (**Currently amended**) The apparatus of claim 35, wherein the light energy is produced by a laser.

37. (**Currently amended**) The apparatus of claim [[34]]1, wherein the electromagnetic radiation comprises microwave energy.

38. (**Currently amended**) The apparatus of claim [[34]]1, wherein the electromagnetic radiation comprises infrared radiation.

39. (**Currently amended**) The apparatus of claim [[34]]1, wherein the electromagnetic radiation comprises ultraviolet radiation.

40. (**Currently amended**) The apparatus of claim [[31]]1, wherein the mode of therapy further comprises a pharmacologic agent.

41. (Previously presented) The apparatus of claim 40, wherein the pharmacologic agent comprises a radiation source.

42. (**Currently amended**) The apparatus of claim [[31]]1, wherein the mode of therapy further comprises an implantable device.

43. (**Currently amended**) The apparatus of claim [[31]]1, wherein at least one of said tuning-matching circuit, said decoupling circuit and said balun is enclosed within an interface box connected to the antenna with a connector.

44. (**Currently amended**) The apparatus of claim [[31]]1, wherein at least one of said tuning-matching circuit, said decoupling circuit and said balun is enclosed within an interface box connected to the antenna with a wireless connection.

45. (Previously presented) The apparatus of claim 33, wherein at least one of said tuning-matching circuit, said decoupling circuit and said balun resides on said flexible circuit board.

46. (**Currently amended**) The apparatus of claim [[31]]1, wherein the electrical communication between said interface circuit and said MRI machine comprises a wireless connection.

47. (**Currently amended**) The apparatus of claim [[31]]1, wherein said endourethral therapeutic system is affixed to an outside surface of the elongate member.

48. (Previously presented) The apparatus of claim 47, wherein said endourethral therapeutic system is temporarily affixed to said outside surface and is displaceable therefrom.

49. (**Currently amended**) The apparatus of claim [[31]]1, wherein said endourethral therapeutic system is contained within a surrounding layer applied external to the elongate member.

50. (**Currently amended**) The apparatus of claim [[31]]1, wherein said endourethral therapeutic system is contained within said elongate member.

51. (**Currently amended**) The apparatus of claim [[31]]1, wherein said elongate member comprises a hollow tubular member.

52. (Previously presented) The apparatus of claim 51, wherein said endourethral therapeutic system is contained within said hollow tubular member.

53. (Previously presented) The apparatus of claim 52, wherein said endourethral therapeutic system is displaceable from a first position within said hollow tubular member to a second position external to said hollow tubular member.

54. (Previously presented) The apparatus of claim 53, wherein said delivery device, upon the positioning of the endotherapeutic system in said second position, is activated for delivering the mode of therapy.

55. (**Currently amended**) A method for treating an anatomic region within a pelvis of a patient, comprising:

providing an apparatus as defined by claim 1;~~a medical device comprising an elongate member insertable into and temporarily retainable within a urethra of the patient, said elongate member housing an endourethral imaging system and an endourethral therapeutic system, wherein said endourethral imaging system comprises an endourethral MRI coil comprising an antenna, and said endourethral therapeutic system comprises an endourethral delivery device to deliver a mode of therapy transurethrally to an area of the anatomic region imaged by the endourethral imaging system;~~

~~providing an interface circuit interposed between said antenna and a MRI machine, said interface circuit being in electrical communication with said antenna and being in electrical communication with the MRI machine, said interface circuit comprising a tuning-matching circuit, a decoupling circuit and a balun circuit;~~

providing the MRI machine;

inserting said elongate member into the urethra of said patient;

temporarily retaining said elongate member in said urethra;

positioning the pelvis of the patient in a diagnostically effective position relative to the MRI machine;

using the MRI machine to excite magnetic resonance signals within tissues surrounding the anatomic region;

applying gradient magnetic pulses to said human pelvis to spatially encode the magnetic resonance signals;

receiving said magnetic resonance signals in said endourethral MRI coil and producing responsive output signals therefrom;

processing said output signals to obtain an image of the anatomic region;

identifying an area of the anatomic region to be treated;

positioning the endourethral therapeutic system in therapeutic proximity to the area; and

delivering transurethrally the mode of therapy to said area using said transurethral delivery device.

56. (Withdrawn) The method of claim 55, further comprising obtaining a post-therapeutic image of the area.

57. (Withdrawn) The method of claim 54, wherein the step of obtaining the post-therapeutic image of the area is performed using said endourethral imaging system.

58. (**Currently amended**) A method of examining an anatomic region of a human pelvis, comprising:

providing an apparatus as defined by claim 1;~~endourethral magnetic resonance imaging (MRI) receiver coil comprising an antenna residing on a flexible circuit board;~~

~~providing an interface circuit interposed between said antenna and a MRI machine, said interface circuit being in electrical communication with said antenna and being in electrical communication with said MRI machine, said interface circuit comprising a tuning-matching circuit, a decoupling circuit and a balun circuit;~~

~~providing a housing enveloping the antenna;~~

providing the MRI machine;

inserting the endourethral MRI ~~receiver~~ coil into a human urethra;

situating the human pelvis within a main magnetic field of the MRI machine;

imposing said main magnetic field on the human pelvis;

applying RF pulses to said human pelvis to excite magnetic resonance signals within the human pelvis;

applying gradient magnetic pulses to said human pelvis to spatially encode the magnetic resonance signals;

receiving said magnetic resonance signals in said endourethral MRI ~~receiver~~ coil;

emitting responsive output signals from said endourethral MRI ~~receiver~~ coil; and

processing said output signals and converting them into information about the anatomic region of the human pelvis,

thereby to examine said anatomic region.

59. (**Currently amended**) A method of diagnosing an abnormality of a prostate of a patient, comprising:

providing an apparatus as defined by claim 1;~~endourethral magnetic resonance imaging (MRI) receiver coil comprising an antenna residing on a flexible circuit board;~~

~~providing an interface circuit interposed between the antenna and a MRI machine, said interface circuit being in electrical communication with said antenna and being in electrical communication with said MRI machine, said interface circuit comprising a tuning-matching circuit, a decoupling circuit and a balun circuit;~~

~~providing a housing enveloping the antenna;~~

providing the MRI machine;

inserting the endourethral MRI ~~receiver~~ coil into a prostatic urethra;

situating the prostate of the patient within a main magnetic field of the MRI machine;

using the MRI machine to excite magnetic resonance signals within tissues surrounding the prostatic urethra;

applying gradient magnetic pulses to said prostate to spatially encode the magnetic resonance signals;

receiving said magnetic resonance signals in said endourethral MRI ~~receiver~~ coil and producing responsive output signals therefrom;

processing said output signals to obtain data about the tissues surrounding the prostatic urethra; and

evaluating said data to diagnose the abnormality of the prostate.

60. (**Currently amended**) A method of diagnosing an abnormality of a pelvic floor of a female patient, comprising:

providing an apparatus as defined by claim 1;~~endourethral magnetic resonance imaging (MRI) receiver coil comprising an antenna residing on a flexible circuit board;~~

~~providing an interface circuit interposed between the antenna and a MRI machine, said interface circuit being in electrical communication with said antenna and being in electrical communication with said MRI machine, said interface circuit comprising a tuning matching circuit, a decoupling circuit and a balun circuit;~~

~~providing a housing enveloping the antenna;~~

providing the MRI machine;

inserting said endourethral MRI ~~receiver~~ coil into a female urethra;

situating said pelvic floor within a main magnetic field of the MRI machine;

using the MRI machine to excite magnetic resonance signals within tissues surrounding the female urethra;

applying gradient magnetic pulses to the tissues surrounding the female urethra to spatially encode the magnetic resonance signals;

receiving said magnetic resonance signals in said endourethral ~~receiver~~ coil and producing responsive output signals therefrom;

processing said output signals to obtain data about the tissues surrounding the female urethra; and

evaluating said data to diagnose the abnormality of the female pelvic floor.

61. (**Currently amended**) A method of diagnosing a condition of a pelvis of a pediatric patient, comprising:

providing an apparatus as defined by claim 1;~~endourethral magnetic resonance imaging (MRI) receiver coil comprising an antenna residing on a flexible circuit board, said endourethral MRI receiver coil being dimensionally adapted for insertion into a urethra of the pediatric patient;~~

~~providing an interface circuit interposed between said antenna and a MRI machine, said interface circuit being in electrical communication with said antenna and being in electrical communication with the MRI machine, said interface circuit comprising a tuning-matching circuit, a decoupling circuit and a balun circuit;~~

~~providing a housing enveloping the antenna;~~

providing the MRI machine;

inserting said endourethral MRI ~~receiver~~ coil into the urethra of the pediatric patient;

situating the pelvis within a main magnetic field of the MRI machine;

using the MRI machine to excite magnetic resonance signals within tissues surrounding the urethra;

applying gradient magnetic pulses to said human pelvis to spatially encode the magnetic resonance signals;

receiving said magnetic resonance signals in said endourethral MRI ~~receiver~~ coil and producing responsive output signals therefrom;

processing said output signals to obtain data about the tissues surrounding the urethra; and

evaluating said data to diagnose the condition of the pelvis of the pediatric patient.

62. (New) An apparatus for magnetic resonance imaging of an anatomic region of a human pelvis, comprising:

an endourethral magnetic resonance imaging (MRI) coil comprising an antenna;

an interface circuit interposed between the antenna and a MRI machine, said interface circuit being in electrical communication with the antenna and being in electrical communication with the MRI machine, said interface circuit comprising a tuning-matching circuit, a decoupling circuit, a balun circuit, and a DC regulating circuit; and

a housing enveloping the antenna;

wherein at least one of the tuning-matching circuit, the decoupling circuit, the balun circuit, and the DC regulating circuit is enclosed within an interface box connected to the antenna by a wireless connection.

63. (New) An apparatus for magnetic resonance imaging of an anatomic region of a human pelvis, comprising:

an endourethral magnetic resonance imaging (MRI) coil comprising an antenna;

an interface circuit interposed between the antenna and a MRI machine, said interface circuit being in electrical communication with the antenna and being in electrical communication with the MRI machine, said interface circuit comprising a tuning-matching circuit, a decoupling circuit and a balun circuit; and

a housing enveloping the antenna;

wherein the electrical communication between said interface circuit and said MRI machine comprises a wireless connection.

64. (New) An apparatus for magnetic resonance imaging of an anatomic region of a human pelvis, comprising:

an endourethral magnetic resonance imaging (MRI) coil comprising an antenna;

an interface circuit interposed between the antenna and a MRI machine, said interface circuit being in electrical communication with the antenna and being in electrical communication with the MRI machine, said interface

circuit comprising a tuning-matching circuit, a decoupling circuit and a balun circuit;

an endourethral therapeutic system comprising an endourethral delivery device to deliver a mode of therapy transurethrally to an area of the anatomic region imaged by the endourethral imaging system; and

a housing enveloping the antenna and the endourethral therapeutic system, the housing comprising an elongate member insertable into a urethra of a patient and temporarily retainable in said urethra;

wherein at least one of said tuning-matching circuit, said decoupling circuit and said balun is enclosed within an interface box connected to the antenna with a wireless connection.

65. (New) An apparatus for magnetic resonance imaging of an anatomic region of a human pelvis, comprising:

an endourethral magnetic resonance imaging (MRI) coil comprising an antenna;

an interface circuit interposed between the antenna and a MRI machine, said interface circuit being in electrical communication with the antenna and being in electrical communication with the MRI machine, said interface circuit comprising a tuning-matching circuit, a decoupling circuit and a balun circuit;

an endourethral therapeutic system comprising an endourethral delivery device to deliver a mode of therapy transurethrally to an area of the anatomic region imaged by the endourethral imaging system; and

a housing enveloping the antenna and the endourethral therapeutic system, the housing comprising an elongate member insertable into a urethra of a patient and temporarily retainable in said urethra;

wherein the electrical communication between said interface circuit and said MRI machine comprises a wireless connection.